Natural Resource Program Center FY 2011 Annual Report

1. Introduction

1.1. Vision, Goals and Objectives

Vision:
A nationally coordinated inventory and monitoring (I&M) effort on the National Wildlife Refuge System (Refuge System) will generate information critical to ensuring the Refuge System's ongoing contributions to the conservation of the nation's wildlife and plant resources in the face of climate change and other environmental stressors. Collaboration with other U.S. Fish and Wildlife Service (Service) programs and State, Federal, and private partners will lead to the effective integration of inventory and monitoring data needed to advance conservation at landscape scales.

I&M will document the status of, assess the condition of, and detect changes in the Refuge System's diverse biotic communities, as well as physical resources including water, air and soils, and ecological processes in order to support science-based conservation planning and management at all spatial scales. The information generated will be scientifically credible, relevant, and valued by the Service, its partners in the conservation community, and the public. I&M protocols and standards provide the basis for consistent data collection and data management throughout the Refuge System, ensuring the timeliness, availability, and long-term integrity of the information collected.

Goals:

1. Meet the Refuge System's legal mandate to monitor the status and trends of wildlife and plant populations on refuges, and collect and manage information needed to maintain biological diversity, ecological integrity, and environmental health, and preserve the character of designated wilderness within the System.

2. Advance wildlife conservation at the refuge scale and broader landscape scales in an adaptive management cycle by providing scientific information that supports conservation planning and design, guides learning through evaluation of conservation delivery, and offers a basis for assumption-driven research.

3. Implement monitoring of wildlife and plants; physical resources; and ecological processes to reduce uncertainty related to impacts of climate change and other stressors; provide early warning of changing conditions; and guide development of management actions that facilitate adaptation to climate change.

4. Synthesize, interpret, and report on the condition of wildlife, plants, and habitats conserved by the Refuge System in a manner that documents the contributions of the Refuge System within the context of the larger conservation estate and clearly communicates its value to the American public.

5. Increase effectiveness and save money by coordinating and integrating monitoring of natural resources at landscape scales through collaboration with other Service programs, other federal I&M programs, other government agencies, and organizations.

FY11 Objectives:

- Compile and distribute as requested existing abiotic datasets identified in Fulfilling the Promise WH8.1
- Conduct review of USA National Phenology Network database to determine what protocols have been developed and explore future collaboration.
- Collaborate with Ecological Services (and specifically ECOS) to determine status of ESA species on refuges (current, historic or restored); compare with CCP species data and validate with refuges.
- Provide funding and support for reconnaissance-level inventory of water resources to facilitate the completion of final assessments (WRIA).
- Coordinate bird monitoring with Migratory Birds and other partners
- Initiate pilot project on 8 refuges to inventory legacy data and documents (ServCat); summarize and evaluate results for further implementation on refuges in each region.
- Conduct a review of current Refuge I&M activities across the system using PRIMR; continue to implement PRIMR pilot across the NWRS
- Accelerates the collection of inventories and baseline data collection such as HGMs and WRIAs.

1.2. Organization and Focus

The national office is directed by the Natural Resource Program Center (Center) Chief and directly supports the science-based management of the Nation's 554 National Wildlife Refuges and 38 Wetland Management Districts that manage more than 150 million acres of public lands and waters across the United States in all 50 States, several Territories, and the marine environment.

The primary purpose of Center is to collect and synthesize information that supports management at multiple geographic scales and informs management decisions at all levels. The Center will streamline and enhance the Refuge System's scientific capacity through the standardization of scientific protocols providing consistency of methodologies that facilitates collaboration and integration with other agencies, states, and the scientific communities. The Center develops and administers a centralized data storage and retrieval system in accordance with the data standards of the federal government, the agency, and the Department of Interior that will streamline data management. The data will be readily available to field station employees, other agencies, the academic community, and the general public when appropriate.

The Center works closely with the I&M regional coordinators ensuring that science is used to inform adaptation strategies to climate change and other environmental stressors at the local, regional, landscape, and national level. We assist local managers through the development of science-based decision support tools along with field and analytical support necessary to inform the production of the Comprehensive Conservation Plan and Habitat Management Plans. Additionally, enabled by standardization of protocols and data management, we will be able to aggregate local data to inform regional, landscape and national assessments.

Areas of national interest include standardization of protocols, inventories of abiotic and biotic resources, phenological monitoring, Endangered Species Act (ESA) reporting and verification,

wilderness character monitoring, recording and documenting ongoing surveys, and storage and organization of refuge specific data.

1.3. Integration with Regional Refuge Biological Program

The I&M initiative is designed to address the long-term data needs of the Refuge System, which supports the planning and management of refuges at the local scale as well as strategic growth of the System. Full realization of the I&M initiative necessitates seamless integration into, and leveraging of, the existing refuge biological program, thus ensuring the adoption of standard operating procedures and data standards along with consistent reporting requirements. This is accomplished through strong communication among national, regional and field level staff.

Specifically, we are working on several efforts that will provide a direct benefit to the refuge. We implemented a pilot effort on 8 refuges that will upload refuge documents into the FWS reference database, GRAS; creating a permanent record that can be readily accessed by NWRS staff. We pilot tested population of the PRIMR database, which was designed to assist the refuge with planning efforts as well as provide a listing of surveys, and associated protocols, currently conducted in the field. Through this effort we will begin to assess which surveys are appropriate for regional, landscape or national standardized protocol. We also compiled a list of T&E species currently present and historically occurring on refuges both refuge CCP documents and the FWS Environmental Conservation Online System (ECOS) database. After validation by the field, this information will be used to both inform ECOS and provide direct support to refuge management decisions.

1.4. Coordination with other regional FWS programs

The I&M initiative is designed to support the Service's landscape approach to conservation and assist managers in applying adaptive management to refuges ecosystems responding to changing climate and other stressors. To this end, the Center is highly invested in creating and maintaining avenues for partnering with both internal and external partners.

We are leveraging resources with key partners to ensure sound stewardship of public funds. Science offices for both the National Park Service and the U.S. Geological Survey are located in Fort Collins. Having physical proximity to these offices helps us integrate systems across the federal government and minimize duplication of effort.

We are working closely with the LCC coordinators and regional science advisors, to help ensure coordination of monitoring efforts. Specifically, several staff members participate on LCC teams, such as the Climate Science Center/Science Needs team and the team Monitoring Framework and Coordination team.

As part of the Natural Resource Program Center (Center), the Inventory and Monitoring initiative (I&M) will assist local managers and staff on National Wildlife Refuges by providing standardized, peer-reviewed scientific protocols and data to evaluate the effects of management actions.

We participated in the Migratory Bird Program annual workshop and will work closely with them to coordinate the various national bird monitoring efforts, such as mid-winter waterfowl and breeding bird counts.

We are coordinating with the National Avian Health and Disease Program to ensure that collaboration and cooperation occurs where appropriate.

The NRPC chief coordinates with the Science Application ARD group and coordination of the Office of Science Advisor is routine

2. Public Interest Highlights

- Significant strides are being made in data management capabilities. Investment in data management will ensure increased quality control; improved availability of data and permanence of records; and, clear and regular reporting resulting in increased efficiencies and minimizing the opportunity for needless duplication of effort.

- Wilderness Character Monitoring. Ten Wilderness fellows, recent college graduates hired through the Student Conservation Association came to the National Resource Program Center to be trained on the Wilderness Act and the assessment of wilderness character. They have gone out 18 refuges with wilderness, and working closely with refuge staff have established appropriate measures for the wilderness character of each designated wilderness. A Wilderness Character Database, begun by NPS in 2010 and further developed by FWS this year will hold the measures taken at each refuge. The goal is take this to other refuges and DOI agencies in 2012, so that wilderness character monitoring is a regular part monitoring efforts.

3. Staffing

The Natural Resource Program Center (Center) Chief directs an office comprised of 10 employees. The Center staff includes a National I&M Manager, National Data Manager, National Water Resources Coordinator, three GIS Specialists, three Ecologist/Biologists, and an Administrative Officer. The Center is located in Fort Collins in order to leverage resources with key partners and ensure sound stewardship of public funds.

4. Accomplishments - activities and products

The refuge science leaders in the regions identified 5 priority areas that will best inform long-term strategies for managing at the landscape scale but will also provide products directly relevant to refuge management decisions. The Center took the lead in implementing the initial phase of these initiatives laying much of the necessary groundwork for full-scale implementation:

- Abiotic Inventory: To ensure that Fulfilling The Promise Baseline Inventory Team WH8.1 abiotic recommendations have been fulfilled and that data at the appropriate spatial resolution is available to local managers for use in management planning.

- Phenology: Monitoring phenological events provides information on spatial and temporal ecosystem dynamics that can help identify effects from climate change and other stressors. Understanding how our ecosystems are changing will aid refuge management and planning efforts.
- T&E Species: Determine the current status and trend of each population of endangered, threatened, candidate, and delisted/monitored species on National Wildlife Refuge lands.
- Water Quantity: Develop goals and objectives for monitoring water quantity; provide data for water rights acquisition; provide status and trends for water quantity and timing at a station/site within a watershed context
- Water Quality: Develop goals and objectives for monitoring water quality; assess that water quality is sufficient to support natural processes and biotic assemblages by monitoring key abiotic parameters, such as nutrients, contaminants, sedimentation, temperature, and DO.

Significant staff time was allocated to data management efforts and significant strides were made in four major efforts:

- IRIS: Established strategic partnership with ECOS to initiate the design and development of an Integrated Refuge Information System.
- GRAS: A collaboration with NPS to modify their "legacy data" storage and retrieval system for use by NWRS, the Geospatially Referenced Archive Service will ultimately make recent and historic resource management documents accessible to the entire Service.
- PRIMR: Desktop database product designed to assist NRPC, regions and field station with the Planning and Review of Inventory & Monitoring activities occurring on Refuges.
- WRIA: Leveraging resources from ECOS and Denver IRTM staff to develop database application to support the Water Resource Inventory and Assessment effort.

5. Budget Narrative and Budget

FY11 allocation was based upon an expected appropriation of $18.296M. This includes the continued availability of the $12M first appropriated in FY10, plus an additional $6.296M internally reprogrammed within the NWRS. The initial $12M provided $3M to the Natural Resource Program Center and $1.125M per region. The initial appropriation was focused largely on capacity in terms of permanent employees to both initiate and sustain the NWRS Inventory & Monitoring (I&M) effort and on IT investments for data management and storage.

Table 5.1. Itemized allocation of Natural Resource Program Center FY11 projects.

Item	Cost ($)
Salaries	894,429
Personnel Costs – Non Salary	13,598
PCS Moves	104,282
Travel	113,484
IT Investments	625,674
Data Acquisition and Contracts	2,020,839
Office Administrations and Operations	122,208

Table 4.1. NRPC Inventory and Monitoring Activities, Staff, Funding and Status by Project or Theme

Blueprint Objectives and Tasks	Project or Theme; Status and Accomplishments	Product/Status	Funding I=I&M R=Refuges O=Other	Status P=Planned F=Funded IP=In progress C=Completed
National I&M Priorities				
1a Priority Task	*Compile and distribute on request existing abiotic data sets as identified in Fulfilling the Promise WH8.1*	Assessment and status of 5 core layers is complete Estimate costs for acquiring datasets (being done in collaboration with NWRS GIS Coordinator) Distribute available core abiotic layers to any Refuge upon request a. Topography b. Aerial Photography c. Hydrography d. Soils e. Boundaries (refuge easements, right-of-ways, wilderness areas, political, etc.) f. Infrastructure (roads, culverts, dams, water structures, buildings, power lines, underground utilities, NGS survey markers, bench marks Collaborating with NWRS Geospatial Advisory Committee (GAC) and others to develop standards and solutions for acquiring NWRS infrastructure datasets.	I	IP

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1c Priority Task	ESA Species Reporting to Ecological Services	List of species currently present and historically occurring on refuges was derived from geospatial data currently stored in ECOS and crosschecked with refuge data available in the CCPs. 1. Over 14,000 occurrences noted 2. Presented in spreadsheet by refuge 3. Will be available for validation by refuge Coordinating with Ecological Services to provide an online database for data entry 1. Will be integrated with ECOS 2. Information format similar to what other Agencies use to submit required T&E information	I	IP
2a Priority Task	Water Quality and Quantity Assessment	Agree on standard water parameters that would be measured universally across the NWRS Identify standard protocols for measuring quantity and quality, from USGS and EPA Identify/develop data management procedures Identify logistics for field collection (i.e., through the NRPC or through Regions) Identify pilot refuges/refuge complexes to initiate data collection	I	IP

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4b Priority Task	Partner with the USA National Phenology Network by developing a landing page or portal for the NWRS on the USA-NPN webpage	Completed initial scoping effort Determined species and protocols used by USA-NPN (308 of the 474 species are categorized as plants) Investigate ease of data input and output for refuge specific use (designed for citizen science input) Preliminary assessment of QA/QC procedures in place (includes comprehensive training materials and species profile pages) Initial assessment of number of refuges currently using USA-NPN database to store phenological data (13 stations currently utilizing the USA-NPN database) Initiated discussions to develop FWS node on USA-NPN website	I	IP
2a	Provide support and funding for reconnaissance-level inventory of water resources as delineated in Water Resource Inventory and Assessments (WRIA)	Regions have identified priority refuges for WRIAs, and in many cases are being coordinated with Hydrogeomorphic analyses, CCPs, and/or HMPs. As of the end of FY2011, 12 WRIAs have been completed, with another 26 in progress.	I	IP

Blueprint Objectives and Tasks	Project or Theme; Status and Accomplishments	Product/Status	Funding I=I&M R=Refuges O=Other	Status P=Planned F=Funded IP=In progress C=Completed
Gen.Task – 1c	Coordinate bird monitoring with Migratory Birds and other partners	Participated on I&M Bird Team Attended the annual ARD Migratory Bird Program meeting to discuss areas of potential collaboration Worked with the Avian Health and Disease Program National Coordinator on collaborative efforts Initiated discussions with Rocky Mountain Bird Observatory regarding regional and landscape scale monitoring protocols for landbirds	I	IP
1c Data Mng.-1 Data Mng.-3	GRAS Development and Pilot Implementation	Worked with NPS to create a desktop Access version of the NPS Reference database prior to centralization and migration of the full database Initiated GRAS Implementation Pilot to be conducted on 8 refuges. Wrote contract to hire two bio-technicians that will travel to the pilot refuges Created complete data records for 281 documents from Ash Meadows NWR. Lead the I&M working-group that produced the GRAS Pilot Implementation Guidance Manual	I	IP

Blueprint Objectives and Tasks	Project or Theme; Status and Accomplishments	Product/Status	Funding I=I&M R=Refuges O=Other	Status P=Planned F=Funded IP=In progress C=Completed
Data Mng. -1 Data Mng. -5	PRIMR development and pilot implementation	Developed and deployed pilot desktop database currently in use. Evaluating and assessing consistency and quality of regional data for Service wide applicability.	I	IP
Data Mng.-2 Data Mng.-7	Design and Development of an Integrated Refuge Information System - IRIS	Partnership with ECOS established to initiate the design, development of an Integrated Refuge Information System. Currently designing and developing new I&M funded systems such as GRAS and WRIA to be hosted on ECOS platform	I	IP

Blueprint Objectives and Tasks	Project or Theme; Status and Accomplishments	Product/Status	Funding I=I&M R=Refuges O=Other	Status P=Planned F=Funded IP=In progress C=Completed
General	Wilderness Character Monitoring Pilot Implementation	All of the major federal land management agencies using common definitions to collect data on wilderness areas Ten Wilderness Character Monitoring Fellows are currently at refuges to assess wilderness character 18 refuges from six regions are participating First set of measures coming in from half the refuges 18 refuges will be assessed before the end of November 2011	I	IP
COMMUNICATION - TRAINING				
General	Natural Resource Leadership Team Workshop, 17-19 May 2011: Selecting I&M Tasks for Implementation within the Natural Resource Program	The Natural Resource Leadership Team held a facilitated workshop to select inventory and monitoring (I&M) tasks for implementation by I&M Coordinators. A report was produced that described the following five priority tasks designated for implementation by the I&M Coordinators: 1. Abiotic Inventory 2. Phenological monitoring 3. T&E Species 4. Water Quality 5. Water Quantity	I	C

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General	I&M Coordinators Workshop, 1-3 June 2011: Implementation of National Priority I&M Tasks and Long-term Objectives for the I&M Initiative within the Natural Resource Program	The Inventory & Monitoring (I&M) Coordinator Team held a meeting on implementation of tasks that were selected by the Natural Resources Leadership Team (NRLT) as national priorities for the I&M program. The team produced a report that presented 1) recommendations for implementation of the three tasks assigned to the I&M Coordinator Team, 2) long-term objectives for I&M resources within the Natural Resources Program, and 3) a summary of I&M staffing needs.	I	C
2a	Fourth National Assembly of Service Hydrologists (NASH) workshop in Fort Collins, CO.	The purpose of the NASH workshops is to foster communication, exchange ideas, and share knowledge among water resource professionals in the USFWS. Topics for the 2011 workshop included data management, restoration, ecological flows, and climate change.	I	C